

# THE PYTHONTEX ENGINE

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## 1. PYTHONTEX

Pythontex is “a LaTeX package that allows Python code entered within a TeX document to be executed, and the output to be included in the original document.” The package is by Geoffrey Poore, who wrote the system for use in his PhD thesis.

Pythontex is available through CTAN at [www.ctan.org/pkg/pythontex](http://www.ctan.org/pkg/pythontex).

## 2. INSTALLING PYTHONTEX

PythonTeX is now part of TeX Live. If you use TeX Live 2013 or later, you already have it.

## 3. INSTALLING PYTHON

Python is already installed on OS X, but unfortunately the pythontex system requires a number of Python packages which are not part of the default installation: NumPy, SciPy, matplotlib, SymPy, and Pygments. If you are a Python expert, you may already have these packages or understand how to install them for the system Python.

I found it easier to install the Anaconda release of Python from Continuum Analytics, which contains these packages. It installs in the home directory and does not interfere with the system version of Python. To read about it, go to <https://www.anaconda.com/distribution/>. To download, go to <https://www.anaconda.com/download/#macos> and click on the MacOSX link to the GUI installer.

Install this package as usual. It will install Python in a folder named anaconda in your home directory. The installer adds “/Users/Name/anaconda/bin:” to the start of the bash \$PATH variable; edit this if you don’t want to automatically use Anaconda Python.

## 4. ADDING AN ENGINE FILE

Drag the pythontex.engine file from /Library/TeXShop/Engines/Inactive/pythontex to /Library/TeXShop/Engines. If you installed anaconda, you are done. Otherwise edit the engine file with TeXShop to use the system python instead of the anaconda python. The required edit is explained in the engine file.

## 5. TESTING THE SYSTEM

The `/Library/TeXShop/Engines/Inactive/pythontex` folder contains a source file named `"pythontex_gallery1.tex"`, which is also part of the `pythontex` package in CTAN. I've edited the copy in TeXShop to automatically use the `pythontex` engine. Typeset this file. You'll have to push RETURN once as `pdflatex` encounters a graph which Python has not yet produced. If the file typesets after that, your `pythontex` system is working. Read the pdf output to see some capabilities of `pythontex`.